I. Introduction

In response to the Office Action dated December 13, 2005, claims 4, 16, 28, 39, and 51 have been cancelled and claims 1, 12, 24, 35, and 47 have been amended. Claims 1-3, 5-15, 17-27, 29-38, 40-50, and 52-58 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Provisional Double Patenting Rejections

Claims 1, 12, 24, 35, and 47 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8, 15, and 22 of copending Application No. 10/085,920. Applicants note that the subject matter of the copending application and the present application may change thereby obviating the need for the submission of a terminal disclaimer. Applicants may be willing to submit a terminal disclaimer should one become necessary. However, at this time, Applicants traverse the rejection while reserving the right to submit a terminal disclaimer at a later date and upon the determination of allowable subject matter.

III. Prior Art Rejections

In paragraphs (1)-(8) of the Office Action, claims 1-59 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cohen et al. (Cohen), U.S. Patent No. 5,282,249, in view of Kocher, U.S. Patent No. 6,289,455.

Specifically, independent claims 1, 12, 24, 35, and 47 were rejected as follows:

> As to claim 1, Cohen teaches and describes a system for controlling access to digital services comprising: (a) a control center configured to coordinate and provide digital services; (b) an uplink center configured to receive the digital services from the control center and transmit the digital services to a satellite (Fig. 1/1 Item 20); (c) the satellite configured to: (i) receive the digital services from the uplink center (Fig. ½ Item 22); (ii) process the digital services (Fig. ½ Item 22), and (iii) transmit the digital service to a subscriber receiver station (Fig. ½ Item 24); (d) the subscriber receiver station configured to: (i) receive the digital services from the satellite (Fig. ½ Item 26); (a) control access to the digital services through an integrated receiver/decoder IRD) (Fig. ½ Item 30); and (c) a conditional access module (CAM) communicatively coupled to the IRD (Fig. ½ Item 32), [col. 4, line 12 to line 66].
>
> Cohen does not disclose the CAM comprising nonvolatile protected memory component having state information to enforce desired functionality. However, Kocher discloses the CAM (Fig. 2 Item 225) comprising: (i) a system bus; (ii) a plurality of physically separate and independently controlled nonvolatile memory components (col. 21, line 13 to line 15), wherein access control to the digital services is distributed among the nonvolatile memory components (col. 21, line 2 to col. 22, line 25); and (iii) a microprocessor communicatively coupled to the nonvolatile memory components, wherein the microprocessor is configured to use state information in the nonvolatile memory

components to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10, line 5 to line 47 and col. 5, line 55 to col. 6, line 3). Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card.

Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to include the teachings and features of CAM found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would not only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: Fig. 1, col. 5, line 55 to line 56 and col. 6, line 65 to line 67) but will also provide safeguards against attempt by unauthorized person to breach security of system.

As to claim 12, Cohen teaches and describes a method of controlling unauthorized access to digital services (Fig. 1-2). Cohen does not disclose access control comprising nonvolatile protected memory component having sate information to enforce desired functionality. However, Kocher discloses the access control (Fig. 2 Item 225) comprising: distributing access to digital services among a plurality of physically separate and independently controlled nonvolatile memory components on a system bus (col. 21, line 13 to line 15 and col. 21, line 2 to col. 22, line 25); and, communicatively coupling the plurality of nonvolatile memory components to a microprocessor, wherein the microprocessor is configured to use state information in the nonvolatile memory components to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10, line 5 to line 47 and col. 5, line 55 to col. 6, line 3).

Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to include the teachings and features of access control found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would not only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: Fig. 1, col. 5, line 55 to line 56 and col. 6, line 65 to line 67) but will also provide safeguards against attempt by unauthorized person to breach security of system.

As to claim 24, Cohen teaches and describes a method of accessing digital services (Fig. 1-2). Cohen does not disclose access control comprising nonvolatile protected memory component having state information to enforce desired functionality. However, Kocher discloses the access control (Fig. 2 Item 225) comprising: storing state information in a plurality of nonvolatile memory components, wherein the plurality of nonvolatile memory components are physically separate and independently controlled (col. 21, line 13 to line 15 and col. 21, line 2 to col. 22, line 25); accessing digital services using the nonvolatile memory components wherein the state information is used to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10, line 5 to line 47 and col. 5, line 55 to col. 6, line 3).

Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to include the teachings and features of access control found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would no only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: Fig. 1, col. 5, line 55 to line 56 and col. 6, line 65 to line 67) but will also provide safeguards against attempt by unauthorized person to breach security of system.

As to claim 35, Cohen teaches and describes a system for controlling access to digital services (Fig. 1-2). Cohen does not disclose the CAM comprising nonvolatile protected memory component having state information to enforce desired functionality. However, Kocher teaches a method conditional access module (CAM) to digital services (Fig. 2 Item 225) comprising: (i) s

system bus; (ii) a plurality of physically separate and independently controlled nonvolatile memory components (col. 21, line 13 to line 15), wherein access control to the digital service is distributed among the nonvolatile memory components (col. 21, line 2 to col. 22, line 25); and (iii) a microprocessor communicatively coupled to the nonvolatile memory components, wherein the microprocessor is configured to use state information in the nonvolatile memory components to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10, line 5 to line 47 and col. 5, line 55 to col. 6, line 3).

Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to include the teachings and features of CAM found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would not only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: Fig. 1, col. 5, line 55 to line 56 and col. 6, line 65 to line 67) but will also provide safeguards against attempt by unauthorized person to breach security of system.

As to claim 47, Cohen teaches and describes an article of manufacture for preventing unauthorized access to digital services (Fig. 1-2). Cohen does not disclose access control comprising nonvolatile protected memory component having state information to enforce desired functionality. However, Kocher discloses the access control (Fig. 2 Item 225) comprising: means for distributing access control to digital services among a plurality of physically separate and independently controlled nonvolatile memory components on a system bus (col. 21, line 13 to line 15 and col. 21, line 2 to col. 22, line 25); and means for communicatively coupling the plurality of nonvolatile memory components to a microprocessor, wherein the microprocessor is configured to use state information in the nonvolatile memory components to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10, line 5 to line 47 and col. 5, line 55 to col. 6, line 3).

Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to include the teachings and features of access control found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would not only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: Fig. 1, col. 3, line 55 to line 56 and col. 6, line 65 to line 67) but will also provide safeguards against attempt by unauthorized person to breach security of system.

Applicants note that the independent claims were amended to include the limitations of dependent claims 4, 16, 28, 39, and 51. These dependent claims were rejected as follows:

As per Claim 4, 16, 28, 39, and 51, each nonvolatile memory component has separate memory access control restrictions (Kocher: col. 24 line 10 to line 30).

The amended claims further provide that the single microprocessor controls each of the plurality of nonvolatile memory components.

Applicant traverses the above rejections for one or more of the following reasons:

(1) Neither Cohen nor Kocher teach, disclose or suggest a single microprocessor that controls multiple nonvolatile memory components that are physically separate and independently controlled; and

(2) Neither Cohen nor Kocher teach, disclose or suggest a single microprocessor that controls multiple nonvolatile memory components with separate memory access control restrictions.

Independent claims 1, 12, 24, 35, and 47 are generally directed to controlling access to digital services. More specifically, digital services are processed in a control center, uplinked to a satellite, and received at a subscriber receiver station where they are processed by a conditional access module (CAM). The claims further provide specific limitations relating to the CAM. In this regard, the CAM has a system bus, and a plurality of physically separate and independently controlled nonvolatile memory components. Access control to the digital services is distributed among the multiple nonvolatile memory components. In addition, a microprocessor is coupled to each of the nonvolatile memory components. The microprocessor has various capabilities including the ability to use state information in the memory components to provide desired functionality and enforce a security policy for accessing the digital services. As amended, the single microprocessor further controls each of the nonvolatile memory components. Further, the memory components each have separate memory access and control restrictions.

Accordingly, not only are each of the multiple nonvolatile memory components independently controlled, but they have separate memory access and control restrictions while being controlled by the same microprocessor.

The cited references do not teach nor suggest these various elements of Applicants' independent claims.

The Office Action admits Cohen's lack of teaching of multiple nonvolatile memory components as claimed. To teach these elements of the claims, the Office Action relies on Kocher col. 21, line 13 to col. 22 line 25 and col. 24, line 10 to line 30. Applicants respectfully disagree with and traverse such rejections. Namely, these portions of Kocher completely fail to describe multiple nonvolatile memory components organized in the manner claimed. Instead, Kocher merely describes multiple microprocessors that each may have its own RAM, ROM, and EEPROM (see col. 21, lines 34-40). However, the ability for a single microprocessor to independently control separate nonvolatile memory components is not taught or disclosed, explicitly or implicitly, in Kocher. The use of multiple nonvolatile memory components as claimed provides significant advantages over the prior art including Kocher. Paragraph [0062] of the application as filed describes some of such advantages:

> [0062] FIG. 6 illustrates the architecture of a CAM 512 in accordance with one or more embodiments of the invention. The CAM 512 contains a microprocessor 602, volatile memory components 604 (e.g., random access memory [RAM]), a plurality of nonvolatile memory components 606 (e.g., electrical erasable programmable read only memory [EEPROM], erasable programmable read only memory [EPROM], or batter packed RAM), and a system input/output module 608, all of which are communicatively coupled to a system bus 610. As illustrated, a plurality of nonvolatile memory components 606 are utilized. Using this approach, each nonvolatile memory component 606 has separate memory access control restrictions and may implement entirely unique memory access control logic. This forces an intruder to embark on multiple separate attacks to compromise each memory component 606.

As can be seen, such an approach forces an intruder to attempt multiple separate attacks in order to access each separate memory component and gain access to the digital services. However, Kocher does not even remotely allude to such a benefit or capability. Instead, Kocher merely describes two microprocessors – one serves as an interface control processor (ICP) that communicates with a second processor that is a cryptofirewall that controls access to a protected memory (see col. 7, lines 54-60 and col. 21, lines 34-54). However, such a teaching completely and totally fails to describe or suggest a single microprocessor that access multiple nonvolatile memory components that are not in protected memory.

Applicants further note that claims 3, 24, 37, and 49 provide a limitation for a custom logic block that is further described in copending patent applications. It is noted that the custom logic block controls access to memory. However, the multiple nonvolatile memories of the present invention are not controlled by the custom logic block. FIG. 6 of the present invention illustrates the multiple nonvolatile memory components of the system as claimed. There are clearly significant, distinguishable, and nonobvious differences from the system of FIG. 6 as claimed and Kocher (and/or the combination of Kocher with Cohen).

Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Cohen and Kocher. In addition, Applicants' invention solves problems not recognized by Cohen and Kocher.

Thus, Applicants submit that independent claims 1, 12, 24, 35, and 47 are allowable over Cohen and Kocher. Further, dependent claims 2-3, 5-11, 13-15, 27-23, 25-27, 29-34, 36-38, 40-46, 48-50, and 52-58 are submitted to be allowable over Cohen and Kocher in the same manner, because they are dependent on independent claims 1, 12, 24, 35, and 47, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-3, 5-11, 13-15,

27-23, 25-27, 29-34, 36-38, 40-46, 48-50, and 52-58 recite additional novel elements not shown by Cohen and Kocher.

IV. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

Georgann S. Grunebach, Registration No. 33,179
Attorney for Applicants

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The DIRECTV Group, Inc.
RE / R08 / A109
P.O. Box 956
2230 E. Imperial Highway
El Segundo, CA 90245-0956

Phone: (310) 964-4615